

### Abstract of the Disclosure

Provided is a field emission device having a mesh gate. The object of this research is to provide a field emission display (FED) using a triode field emission device for preventing increase of operation voltage, and securing high concentration of electron beams. The operation properties of the FED is different based on a structure of an extraction electrode. In this research, the extraction electrode is formed on the electron emitting source and it has a plurality of openings corresponding to the locations of carbon nanotube mixture. The concentration of the electron beams is raised and leakage current is suppressed by using an insulating mesh gate plate. The upper part of the openings has a smaller diameter than the lower part. The high concentration of electron beams and little leakage current can be generated by adding auxiliary electrodes or optimizing the shape of electrodes.